GONORRHEA
GC

✓DISEASE AND EPIDEMIOLOGY

Clinical Description:

Many gonorrhea infections can occur without symptoms. Most males with urethral infection have symptoms of purulent or mucopurulent urethral discharge. Men may also have epididymitis (inflammation of the epididymis – swollen/painful testes) due to *N. gonorrhoeae*. Symptoms for women can include abdominal pain, and mucopurulent or purulent cervical discharge. Women may also get urethritis (inflammation of the urethra – painful urination). *N. gonorrhoeae* can cause pelvic inflammatory disease (PID) in women. Disseminated (bloodstream) infection can occur with rash, and joint and tendon inflammation. Infection of the throat, and the rectum can also occur and are often asymptomatic. Perinatal infections may result in inclusion conjunctivitis (red, irritable eyes with a sticky discharge) and pneumonia in newborns.

Causative Agent:

Gonorrhea is caused by *Neisseria gonorrhoeae*, a gram-negative oxidase-positive bacteria that appears as a diplococcus.

Differential Diagnosis:

The differential diagnosis for gonorrhea includes chlamydia.

Laboratory identification:

Gonorrhea is typically identified by testing endocervical, vaginal, male urethra or urine specimens. Culture, nucleic acid hybridization tests, and nucleic acid amplification tests (NAAT) are available for the detection of genitourinary infection with *N. gonorrhoeae.* Culture and nucleic acid hybridization tests require female endocervical or male urethral swab specimens. NAAT offer the widest range of testing specimen types because they are FDA-cleared for use with endocervical swabs, vaginal swabs, male urethra swabs, and female and male urine. In general, culture is the most widely available option for the diagnosis of infection with *N. gonorrhoeae* in nongenital sites (e.g., rectum and pharynx).

While the nucleic acid tests are more sensitive than culture, there are some situations where culture is recommended: rectal and pharyngeal cultures, pediatric patients with suspicion of sexual abuse, and individuals who have failed antibiotic therapy.
Some laboratories have initiated NAAT of rectal and pharyngeal swab specimens after establishing the performance of the test to meet CLIA requirements.

UPHL: The UPHL provides NAAT testing for both gonorrhea and chlamydia.

Treatment:

The following treatment is recommended:

- Ceftriaxone, 125mg, IM x 1 dose

For additional treatment options please go to www.cdc.gov/std/treatment for CDC's Sexually Transmitted Disease Treatment Guidelines, 2006 and Update

Case fatality:
Gonorrhea is not fatal.

Reservoir:
Gonorrhea infections occur only in humans.

Transmission:
Gonorrhea is transmitted by direct sexual contact either through oral, vaginal or rectal sex. Gonorrhea can also be transmitted at birth through contact with an infected birth canal.

Susceptibility:
Susceptibility is general. People who are infected develop antibodies, but there are many different gonococcal strains so prior infection does not confer immunity to all strains and reinfection is common. Women using an intrauterine contraceptive device have higher risks of gonococcal salpingitis (infection of the fallopian tubes) during the first three months of insertion; some people deficient in complement components are uniquely susceptible to bacteremia. Younger women are more susceptible to infection than older women due to a change in the vaginal epithelium that occurs during aging.

Incubation period:
The incubation period of gonorrhea is 1-14 days for symptomatic disease.

Period of communicability:
The period of communicability may extend months in untreated individuals. Effective treatment ends communicability within hours.

Epidemiology:
Gonorrhea is the second most commonly reported infectious disease in the United States, with 339,593 cases reported in 2005. Following a 74 percent decline in the rate of reported gonorrhea from 1975 through 1997, overall gonorrhea rates appear to have plateaued in recent years. In 2005, the gonorrhea rate was 115.6 cases per 100,000 population, representing only a slight increase from the rate of 112.4 in 2004.

In contrast to the other regions of the United States, gonorrhea rates per 100,000 population in the West have increased steadily in recent years. The gonorrhea rate in the West increased by 13.5 percent between 2004 and 2005, and increased by 35.4 percent between 2001 and 2005.

Drug resistance is an increasingly important concern in the treatment and prevention of gonorrhea. CDC monitors trends in gonorrhea drug resistance through the Gonococcal

Isolate Surveillance Project (GISP), which tests gonorrhea samples ("isolates") from the first 25 men with urethral gonorrhea attending STD clinics each month in sentinel clinics across the United States (27 cities in 2005).

✓PUBLIC HEALTH CONTROL MEASURES

Public health responsibility:

- Investigate all suspect cases of disease and fill out and submit appropriate disease investigation forms.
- Provide education to the general public and clinicians regarding disease transmission and prevention.
- Identify clusters or outbreaks of this disease.
- Identify sources of exposure and stop further transmission.

Prevention:

- Emphasis should be placed on early detection and effective treatment of patients and their contacts.
- Educate the community in general health promotion measures;
    - Provide health and sex instruction that teaches the value of delaying sexual activity until the onset of sexual maturity as well as the importance of establishing mutually monogamous relationships and reducing the numbers of sexual partners;
    - Protect the community and controlling STDs in sex workers and their clients;
    - Discourage multiple sexual partners, and anonymous or casual sexual activity;
    - Teach methods of personal prophylaxis applicable before, during, and after exposure, especially the correct and consistent use of condoms.
- Provide health care facilities for early diagnosis and treatment;
    - Encourage their use through education of the public about symptoms of sexually transmitted infections, and modes of spread;
    - Make these services culturally appropriate and readily accessible, and acceptable, regardless of economic status;
    - Establish intensive partner notification;
    - Annual screening of sexually active adolescent girls should be routine.
- Screening of adult women should also be considered if they are under 25 years, have multiple or new sex partners, and/or use barrier contraceptives inconsistently.
- The use of prophylactic agents could be used in the eyes of a newborn and special attention to contacts of infected patients.

Chemoprophylaxis:

All sexual partners should receive prophylaxis as well as infants born to untreated mothers with gonorrhea.

Vaccine:

None

Isolation and quarantine requirements:

Isolation: Avoid sexual contact until treated.
Hospital: Not applicable
Quarantine: Not applicable

✓CASE INVESTIGATION

Reporting:

Gonorrhea is a reportable disease.

Case definition:

Gonorrhea (1996):

Clinical Description

A sexually transmitted infection commonly manifested by urethritis, cervicitis, or salpingitis. Infection may be asymptomatic.

Laboratory Criteria

- Isolation of typical gram-negative, oxidase-positive diplococci (presumptive *N.gonorrhoeae)* from a clinical specimen, or
- Demonstration of N. gonorrhoeae in a clinical specimen by detection of antigen or nucleic acid, or
- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male.

Case Classification

Probable: a) demonstration of gram-negative intracellular diplococci in an endocervical smear obtained from a female or b) a written morbidity report of gonorrhea submitted by a physician.

Confirmed: A case that is laboratory confirmed.

Case Investigation Process:

- Fill out a morbidity form
- Conduct a client interview
- Fill out a client interview record on original patient and field records for contacts identified
- Conduct field investigations on contacts
- Treatment and follow-up for contacts
- Complete interview record

Outbreaks:

A gonorrhea outbreak occurs when the observed rate of disease in a geographical area exceeds the normal (endemic) rate.

Identification of case contacts:

Patients should be instructed to refer their sex partners for evaluation, testing and treatment. All identified sexual contacts of a confirmed case of gonorrhea should be examined and treated, regardless of symptoms, if they had sexual contact with the patient during the 60 days preceding onset of symptoms in the patient or diagnosis of gonorrhea. The most recent sex partner should be evaluated and treated, even if the time of the last sexual contact was greater than 60 days before symptom onset or diagnosis.

Case contact management:

Sex partners should be evaluated, tested, and treated if they had sexual contact with the patient during the 60 days preceding onset of symptoms in the patient or diagnosis of gonorrhea. The most recent sex partner should be evaluated and treated, even if the time of the last sexual contact was greater than 60 days before symptom onset or diagnosis. Infants born to mother with untreated gonococcal infection should also be treated.

All contacts should be instructed to abstain from sexual intercourse until they and their sex partners have completed treatment. Abstinence should be continued until seven days after a single-dose regimen or after completion of a seven-day regimen. Timely treatment of sex partners is essential for decreasing the risk for re-infecting the index patient.

✓REFERENCES

Active Bacterial Core Surveillance Report, Emerging Infections Program Network, Centers for Disease Control, 2005.

Centers for Disease Control, Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR 46 (RR-10), 1997.l

Control of Communicable Diseases Manual (18th Edition), Heymann, D.L., Ed; 2004.

Red Book: 2003 Report of the Committee on Infectious Diseases (26th Edition), Larry K. Pickering MD, Ed; 2003.

Principles and Practice of Infectious Disease (6th Edition), Gerald L. Mandell, John E. Bennett, and Raphael Dolin Eds; 2005.

Massachusetts Department of Public Health, Guide to Surveillance, Reporting and Control, 2006.

ARUP Labs; Physician's Guide to Laboratory Test Selection and Interpretation

Sexually Transmitted Diseases (3rd Edition), King K. Holmes, P Frederick Sparling, Der-Anders Mardh, Stanley M. Lemon, Walter E. Stamm, Peter Piot, Judith N. Wasserheit, 1999

CDC, Sexually Transmitted Diseases Treatment Guidelines, 2006